

# HYPERTHYROIDISM

## About the Diagnosis

Hyperthyroidism is an overall high metabolic state caused by oversecretion of thyroid hormones by the thyroid glands. It is a common disease in older cats.

The thyroid glands are a pair of small, soft glands that lie deep in the tissues on the underside of the neck. In a cat, each normal thyroid gland is about the size of a rice grain. In most cases of hyperthyroidism, the condition is caused by overfunctioning nodules in the thyroid glands. Malignant thyroid tumors are rare, causing only 1-2% of cases of hyperthyroidism in cats. Hyperthyroidism is rare in dogs and is usually caused by thyroid tumors or oversupplementation with thyroid hormones used for treating low thyroid levels.

**Symptoms:** Since thyroid hormone is a major controller of the body's metabolic rate, a common symptom of hyperthyroid cats is that they typically lose weight in spite of increased appetite. Vomiting and diarrhea may also occur, due to the overeating and the changes in metabolism of the intestine. Some cats drink more water and urinate larger volumes than normal, but many other diseases may cause this symptom, too. Hyperactivity is a common sign, and other behavioral changes may occur, such as aggressiveness. Often the hair coat has an unkempt appearance, and the nails may become thickened and overgrown. A small minority-about 10%-of hyperthyroid cats have opposite symptoms and become inactive and lethargic. During an examination, your veterinarian may detect a rapid heart rate or a heart murmur when listening to the chest with a stethoscope because the increased metabolic rate present in hyperthyroidism affects the heart. Your veterinarian may also be able to feel the enlarged thyroid gland simply by palpation (feeling the lower neck with the fingertips).

**Diagnosis:** Most cases of hyperthyroidism can be diagnosed by routine testing for thyroid hormone ( $T_4$ ), which is a simple blood test that specifically measures the circulating level of thyroid hormone. Rarely, some cats suspected of having hyperthyroidism will have normal or equivocal ("grey-zone")  $T_4$  levels on blood testing, and additional tests may be recommended to determine whether or not hyperthyroidism is truly present. Chest x-rays or ultrasound examinations may be recommended to evaluate the heart effects of hyperthyroidism. Routine blood and urine screening, including a complete blood cell count, serum chemistry profile, and urinalysis, are necessary to assess the effects of hyperthyroidism on other organs and to screen for other serious illnesses, especially kidney failure. Kidney failure occurs independently of hyperthyroidism, but because it and hyperthyroidism both tend to occur in adult or older cats, they often are found to be present simultaneously in the same cat. Detecting kidney failure with a blood test and a urine test is important because sometimes kidney failure is partially offset by hyperthyroidism. This may become a concern when the time comes to treat the hyperthyroidism. Treatment to control hyperthyroidism, as described below, is beneficial because it normalizes the metabolism of the organs in the body. However, correcting hyperthyroidism may also remove some of the support for failing kidneys. Therefore, in cats with both hyperthyroidism and kidney problems, it may be preferable to treat the hyperthyroidism in some cases and not to treat it in others, depending on the relative severity of the hyperthyroidism and the kidney failure.

## Living with the Diagnosis

Untreated hyperthyroidism gradually progresses in its symptoms, with severely affected cats becoming emaciated, ravenously hungry, and hyperactive, extremely irritable, or aggressive. Cats that are successfully treated by any of the three methods described below can return to normal, and the long-term outlook is good.

## TREATMENT

Hyperthyroidism can be managed one of three ways: with daily antithyroid medication, with surgical removal of the thyroid gland, or with radioactive iodine treatment. The most commonly used antithyroid drug is methimazole (Tapazole). It is a small tablet (pill) given by mouth in 2 or 3 doses daily. Pharmacies can prepare liquid formulations of the drug to make dosing easier, since many cats are difficult to pill. However, the quality of formulations (uniformity of concentration in the syrup) is difficult to standardize, and for this reason tablets are preferable if feasible. Methimazole controls the hyperthyroid state very effectively. In a minority of cases it also can cause one or more of several side effects including lack of appetite, weight loss, and inactivity. Sometimes it can cause intense facial itchiness, leading a cat to scratch its face and neck until sores appear. Bleeding problems, anemia, and other blood cell abnormalities may occur. Most problems appear within the first 3 months of treatment, and blood testing should be done every few weeks to monitor for complications during this period to

detect the early signs of some of these problems if they occur. A few cats cannot tolerate methimazole, and the medication must be stopped. Additional oral medications are sometimes used to control the heart problems associated with hyperthyroidism.

Surgical treatment requires prior medication (as above) to initially control the hyperthyroidism and make the cat a better surgical candidate. During surgery the thyroid glands in the underside of the neck are removed. The main drawback of surgical treatment is that about 70% of cats with hyperthyroidism go on to develop hyperthyroidism from thyroid tissue in the other thyroid gland or other "ectopic" thyroid tissue elsewhere in the body. Therefore, hyperthyroidism often recurs months or years after surgery.

The third treatment alternative is the administration of radioactive iodine (iodine-131). The iodine is given by injection and is concentrated in the thyroid gland, destroying the abnormal thyroid tissue. Because it concentrates in the thyroid tissue, it is a very low-risk form of treatment for cats with hyperthyroidism. This treatment can only be given in hospitals that are licensed to handle the radioactive substance. The cat must be hospitalized until all of the radioactive iodine has been eliminated from its body, which may take from several days up to a few weeks. This is generally the preferred form of treatment: the treatment is extremely effective, the chance of recurrence is virtually nil, the occurrence of overtreatment (causing hypothyroidism) likewise is very low, and there are no daily pills to give.

## DOs

- Administer any medications as prescribed.
- If you are giving your cat methimazole (Tapazole), watch for the symptoms of adverse effects listed above, and if they occur, stop the medication and call your veterinarian.
- Realize that hyperthyroidism is a lifelong condition that does not get better on its own and that eventually causes life-threatening symptoms if not treated.

## DON'Ts

- Don't be alarmed if your cat seems quieter or less hungry once treatment starts, since treatment may simply be controlling the symptoms of hyperactivity and excessive appetite. If a cat receiving treatment doesn't eat at all for 24 hours or seems profoundly lethargic (unwilling to move around), then you need to contact your veterinarian.
- During monitoring of antithyroid treatment, don't overinterpret small periodic changes in blood thyroid levels. It is the overall trend, along with symptoms at rechecks, that determines how well treatment is working.

## When to Call Your Veterinarian

- During methimazole treatment, if you notice any of the side effects listed in the treatment section.

## Signs to Watch For

- Indications of uncontrolled hyperthyroidism:
  - Excessive appetite with weight loss.
  - Vomiting of food or diarrhea.
  - Hyperactivity or inactivity.
  - Drinking excessive amounts of water or urinating larger volumes than normal.

## Routine Follow-Up

- Cats on methimazole therapy need examination (for the veterinarian to listen to the heart with the stethoscope and check your cat's weight) and laboratory testing (blood samples) every few weeks during the first few months to monitor for side effects, and periodically thereafter based on symptoms.

## Additional Information

- Hyperthyroidism may be triggered or worsened by long-term consumption of canned cat foods, especially from pop-top cans. Cats with borderline or confirmed hyperthyroidism may benefit from switching to food that is not from a pop-top can.